

Exercise problems: 3.1 Defining Probability

- 3.2 - Roulette
 - (a) 47.4% or 18/38
 - (b) 47.4% or 18/38
 - (c) Yes. Each spin is independent so the previous 300 spins do not effect the probability
- 3.5 - Coin Flips
 - (a) 0.09% or 1/1024
 - (b) 0.09% or 1/1024
 - (c) 99.9% or 1023/1024
- 3.6 - Dice Rolls
 - (a) 0. It is impossible to get a sum of 1
 - (b) 11.1% or 4/36
 - (c) 2.8% or 1/36
- 3.7 - Swing Voters
 - (a) No. There may be people that are in both categories
 - (b) See attached
 - (c) 24%
 - (d) 47%
 - (e) 53%
 - (f) No, they are dependent

- 3.8 - Poverty and Language
 - (a) No. There may be people that are in both categories
 - (b) See attached
 - (c) 10.4%
 - (d) 31.1%
 - (e) 68.9%
 - (f) 20.3%
- 3.9 - Disjoint vs Independent
 - (a) Independent
 - (b) Disjoint
 - (c) No.
- 3.11 - Education
 - (a) 25%
 - (b) 26%
 - (c) 6.5% - Assuming they are independent
 - (d) No, it is likely that 2 people getting married will have similar education levels